

IN THE CLAIMS:

Please CANCEL claims 77-104 without prejudice to or disclaimer of the recited subject matter.

Note that all the claims currently pending in this application, including those not currently being amended, have been reproduced below for the Examiner's convenience.

1-44. (Cancelled)

45. (Previously Presented) An exposure apparatus comprising:

an illumination optical system for illuminating a mask with light from a light source;

a projection optical system for projecting a pattern of the mask being illuminated, said projection optical system having a plurality of optical elements; and

gas supplying means for locally supplying a gas to a predetermined surface of one of said optical elements, which is closest to an image plane, the predetermined surface being a surface facing the image plane, wherein said gas supplying means has a surface outlet port which is inclined with respect to the image plane so that the gas outlet port faces toward the predetermined surface of the one optical element rather than to the image plane.

46. (Previously Presented) An apparatus according to Claim 45, further comprising a container for accommodating the optical elements within a space being isolated from a surrounding ambience.

47. (Previously Presented) An apparatus according to Claim 46, further comprising a cover, disposed at the predetermined surface side of said container, for suppressing diffusion of the gas supplied by said gas supplying means to the one optical element.

48. (Previously Presented) An apparatus according to Claim 47, wherein said gas supplying means includes a plurality of gas supplying ports provided inside said cover and disposed revolutionally symmetrically with respect to an optical axis of said projection optical system.

49. (Previously Presented) An apparatus according to Claim 45, further comprising adjusting means for adjusting a gas supplying flow rate and a gas supplying pressure in accordance with the state of use of said exposure apparatus.

50. (Previously Presented) An apparatus according to Claim 45, further comprising temperature adjusting means for adjusting a temperature of the gas supplied from said gas supplying means.

51. (Previously Presented) An apparatus according to Claim 50, wherein said gas supplying means includes a plurality of gas supplying ports provided inside said cover and disposed revolutionally symmetrically with respect to an optical axis of said projection optical system.

52. (Previously Presented) A device manufacturing method, comprising the steps of:  
exposing a workpiece with a pattern by use of an exposure apparatus as recited in  
Claim 45; and  
developing the exposed workpiece.

53-104. (Cancelled)

105. (New) An exposure apparatus comprising:  
a projection optical system, having a plurality of optical elements, for projecting a pattern onto a predetermined plane;  
a barrel for accommodating said plurality of optical elements;  
gas supplying means disposed between the predetermined plane and a final optical element, which is one of said plurality of optical elements that is closest to the predetermined plane, said final optical element being placed at a position of an opening formed in a portion of said barrel, which portion is closest to the predetermined plane, said gas supplying means supplying a gas from one side of said projection optical system; and

gas exhaust means disposed at the other side, opposite to the one side, for exhausting the gas,

wherein said gas supplying means has a plurality of gas supply ports and said gas exhaust means has a plurality of gas exhausting ports.

106. (New) An apparatus according to Claim 105, wherein said plurality of gas supply ports supply gases to a surface of the final optical element, which surface faces the predetermined plane, and wherein the supplied gases are exhausted through said plurality of gas exhaust ports.

107. (New) An apparatus according to Claim 105, wherein gases are supplied from said plurality of gas supply ports to a surface of the final optical element, which surface faces the predetermined plane while the supplied gases are exhausted through said plurality of gas exhaust ports, whereby a local laminar gas flow is supplied to the surface of the final optical element, facing the predetermined plane.

108. (New) An apparatus according to Claim 105, further comprising a cover member provided at the side of the final optical element, facing the predetermined plane, for covering a light path of said projection optical system, wherein said plurality of gas supply ports and said plurality of gas exhaust ports are provided in said cover member.

109. (New) An apparatus according to Claim 105, further comprising chamber gas supplying means for supplying a chamber gas into said barrel, wherein the chamber gas and the gas supplied by said gas supplying means are of the same type.

110. (New) An apparatus according to Claim 105, wherein the gas supplied by said gas supplying means is an inactive gas.

111. (New) An apparatus according to Claim 110, wherein the inactive gas is nitrogen or helium.

112. (New) An apparatus according to Claim 105, further comprising impurity removing means, wherein the supplied gas is an atmosphere and wherein any impurities are removed by said impurity removing means.

113. (New) An apparatus according to Claim 105, further comprising means for removing impurities contained in a gas locally supplied to the surface of an optical element by said gas supplying means.

114. (New) An apparatus according to Claim 105, wherein the gas supplied by said gas supplying means is fed from gas supplying equipment having impurity removing means.

115. (New) An apparatus according to Claim 105, further comprising means for adjusting a flow rate and a pressure of the gas supplied or to be supplied from said gas supplying means, in accordance with the state of operation of said exposure apparatus.

116. (New) An apparatus according to Claim 105, further comprising means for adjusting a flow rate and a pressure of the gas exhausted, or to be exhausted, through said gas exhausting means, in accordance with the state of operation of said exposure apparatus.

117. (New) An apparatus according to Claim 105, further comprising a temperature adjusting function for adjusting a temperature of the gas supplied or to be supplied from said gas supplying means.

118. (New) An apparatus according to Claim 105, wherein said exposure apparatus uses light in an ultraviolet wavelength region.

119. (New) An apparatus according to Claim 105, wherein said plurality of gas supply ports and said plurality of gas exhaust ports are disposed in a direction approximately parallel to the predetermined plane.

120. (New) An apparatus according to Claim 105, wherein the final optical element is an optical element to be opposed to a wafer, placed on the predetermined plane of said projection optical system.

121. (New) A device manufacturing method, comprising the steps of:  
exposing a wafer using an exposure apparatus as recited in Claim 105; and  
developing the exposed wafer.